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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,014	01/17/2002	Oscar Khaselev	KHASELEV 2-2-28	5508

7590

09/04/2003

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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,014

Applicant(s)

KHASELEV ET AL.

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 8 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

This is in response to the Amendment dated August 4, 2003. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Specification

I. The abstract of the disclosure has been objected to.

The objection to the abstract has been withdrawn in view of Applicants' remarks.

II. The disclosure has been objected to because of minor informalities.

The objection to the disclosure has been withdrawn in view of Applicants' remarks.

Claim Objections

Claims **1, 8 and 10** have been objected to because of minor informalities.

The objection of claims 1, 8 and 10 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claim **8** has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

The rejection of claim 8 has been withdrawn in view of Applicants' remarks.

Claim Rejections - 35 USC § 102

Claims **1-6** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Gernon et al.** (US Patent No. 5,296,128).

The rejection of claims 1-6 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

Claims **7-11** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Gernon et al.** (US Patent No. 5,296,128) as applied to claims 1-6 above.

The rejection of claims 7-11 under 35 U.S.C. 103(a) as being unpatentable over Gernon et al. as applied to claims 1-6 above has been withdrawn in view of Applicants' amendment.

Response to Amendment

Claim Rejections - 35 USC § 103

I. Claims **7, 8 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gernon et al.** (US Patent No. 5,296,128).

Gernon teaches an electroplating solution for plating tin-bismuth solder coatings

comprising:

- (a) a sulfonic acid electrolyte (= methanesulfonic acid) [col. 3, lines 22-41];
- (b) a tin compound soluble in the electrolyte to form a tin sulfonate (= tin methanesulfonate) [col. 3, lines 22-41];
- (c) a bismuth compound soluble in the electrolyte to form a bismuth sulfonate (= bismuthous methanesulfonate) [col. 3, lines 22-41];
- (d) a non-ionic surfactant comprising a polyethylene glycol-block-polypropylene glycol with a molecular weight (= blocked EO/PO copolymer) [col. 4, lines 24-35];
- (e) a grain refiner (= gallic acid) [col. 3, lines 3-12]; and
- (f) an antioxidant (= gallic acid) [col. 3, lines 3-12].

Gernon does not teach wherein the molecular weight of the polyethylene glycol-block-polypropylene glycol is between 2,000 and 10,000.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the electroplating solution of Gernon with wherein the molecular weight of the polyethylene glycol-block-polypropylene glycol is between 2,000 and 10,000; and wherein the polyethylene glycol-block-polypropylene glycol comprises polyethylene glycol-ran-polypropylene glycol with a molecular weight between 2,000 and 10,000 because Gernon teaches the blocked EO/PO copolymer of:



wherein R represents a C₁ to C₁₈ alkyl group, a C₁ to C₁₂ alkyl benzene, a beta-naphthalene nucleus or a hydrogen atom; R₁ and R₂ may be hydrogen or methyl; m and n may be integers between 1 and 100; and X may be a halogen, alkyl, aryl, aralkyl, alkoxy, aralkoxy or hydroxyl group (col. 4, lines 24-35).

It appears that if m and n are integers between 1 and 100, the molecular weight of the polyethylene glycol-block-polypropylene glycol would have been between 2,000 and 10,000.

As to wherein the antioxidant comprises polyhydroxybenzene, Gernon teaches that in practice, tin and tin alloy electroplating baths are formulated with an antioxidant which prevents the oxidation of stannous tin to stannic tin. Many antioxidants, such as the dihydroxybenzenes, are believed to function by reacting with the active oxygen compound(s) responsible for tin oxidation (col. 1, lines 34-46).

Thus, adding a polyhydroxybenzene antioxidant to the electroplating solution of Gernon would prevented the oxidation of stannous tin to stannic tin, and also would have retarded the formation of sludges due to some of the tin precipitating from solution as a result of being oxidized either at the anode or in solution to the plus four oxidation state.

Furthermore, antioxidants such as resorcinol, catechol and hydroquinone are

commonly used in the tin and tin alloy electroplating art. It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

Furthermore, Gernon teaches hydroquinone in the tin-bismuth electroplating solution (col. 6, Example 4).

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

Claim 9 defines over the prior art of record because the prior art does not teach or suggest the electroplating solution of claim 7 wherein the polyethylene glycol-block-polypropylene glycol comprises ethylenediamine tetrakis polyethylene glycol-block-polypropylene glycol tetrol with a molecular weight between 2,000 and 7,000.

Claim 11 defines over the prior art of record because the prior art does not teach or suggest the electroplating solution of claim 7 wherein the grain refiner comprises an acrylic acid.

The prior art does not contain any language that teaches or suggests the above.

Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

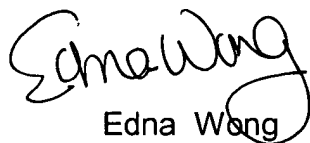
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone number

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for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.

A handwritten signature in black ink, appearing to read "Edna Wong", with a stylized, cursive script.

Edna Wong
Primary Examiner
Art Unit 1753

EW
September 2, 2003